

michigan department of environmental quality

# PERSPECTIVE

[volume 1 issue 1 fall 2007]



**Invasive Species:** Can Michigan stop the spread of these plants and aquatic life that are threatening our natural ecology?

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-Saginaw Bay Coastal Initiative  
-Ballast Water Regulation

-A Look Back at Michigan's  
Environmental Heritage

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online at [www.michigan.gov/deq](http://www.michigan.gov/deq)

# from the desk of the director



Welcome to the first issue of the Department of Environmental Quality's newsletter, *Perspective*. I hope this newsletter will become a relied upon source of information for you to learn more about the DEQ, the services that we offer on behalf of the people of our state, and the issues affecting Michigan's environment.

In the past five years, the DEQ has worked hard to restore Michigan's tradition as a leader in environmental protection. We have advocated for new laws that for the first time prohibit the unwise and excessive use of our water resources, while working with our Great Lakes neighbors to stop others from diverting Great Lakes waters to other parts of the country and the world.

We are requiring our utility companies to reduce mercury emissions by 90% by 2015, and, more recently, are pursuing development of a Climate Action Plan for Michigan to protect sensitive ecosystems, keep our economy competitive, and ensure a

high quality of life for ourselves, our children, and our grandchildren.

We assisted in the enactment of the first law in the Great Lakes region that requires ocean-going ships to treat their ballast water before discharging it, protecting the Great Lakes from the invasive species that threaten our waters. There are other success stories as well, many of which you will see highlighted in future issues of this publication.

Michigan has made great strides in protecting and improving the quality of our environment, through the perseverance, commitment, and hard work of DEQ staff, countless citizen groups, businesses, and local governments.

As we learn more about our planet, we gain greater knowledge of the human impact on nature and ecological systems. New challenges emerge to confront us, some of which are global in scope while others test the very limits of our science and knowledge. I am confident that we, the DEQ and citizens of Michigan, will face these challenges with the resolve to overcome them.

Steven E. Chester  
Director



# [PERSPECTIVE:] invasive species

Michigan is home to countless species of animal and plantlife that have thrived here for generations due to our unparalleled land and water resources. In recent years, however, new non-native species have been showing up across our state that have invaded the habitats of our wildlife and are threatening their survival. Is there anything that can be done to stop it?

## this issue:

### >Aquatic Invaders: Ballast Water

The DEQ's new permit program successfully regulates the release of ballast water, which often contains aquatic invaders, into the Great Lakes. Michigan is the first state to implement such a program. Without regional cooperation on the



issue, however, reversing the trend of invasive introduction into the Great Lakes may not be possible.  
>See page 4.

### >Invasive Species: Phragmites

The most challenging aspect of dealing with invasive species can often be public awareness. Phragmites are a familiar sight



on the sides of roadways, and to date, the efforts to stop their spread have seen limited success.  
>See page 7.

### >Wetland Invaders: Purple Loosestrife

One of the most stubborn, yet unlikely-looking invaders, purple loosestrife, persistently takes over wetland areas. The plants harms water flow in rivers, re-



duces the level of ecological diversity in an area, and adversely affects the lifecycles of native organisms.  
>See page 8.



photo courtesy of Michigan Seagrant

A new Michigan law protects the Great Lakes from non-native aquatic invaders, but will one state's efforts be enough to prevent further damage?

There is little question that the health of the Great Lakes is paramount to Michigan's success. They provide us with the water resources that serve our communities and fuel our economy, along with recreational opportunities found nowhere else on Earth. Picturesque summer days in Michigan are spent diving off docks, fishing, boating and enjoying walks on the beach. Unfortunately, each year, these simple pleasures

face threats from zebra mussels, waterfleas, sea lampreys, and other non-native aquatic species that are entering the Great Lakes and threatening its ecosystems and our quality of life.

The largest gateway for these species making their way to our waters is inside the ocean-going ships that transport cargo to and from the Great Lakes. These freighters take on ballast water to stabilize the ships when there is little or no cargo



The most recent Great Lakes aquatic invader, bloody red mysid was first discovered in the Muskegon area. Its introduction is attributed to improper ballast water release.

on board. With that ballast water, however, they are also taking on board the fish, plants, and microscopic organisms native to those waters, and once they reach their destination they discharge that ballast water, and everything within it, into a new environment.

The invasive species now found in the Great Lakes come from all around the world, and once they reach our waters they often find that there are no natural predators for them here, allowing them to quickly spread and flourish. They invade the habitats and food supplies of our native aquatic life, eliminate or degrade fisheries, damage water infrastructure, and impair the overall health of our waters.

To protect the future of the Great Lakes, Michigan enacted a new law that, starting this year, bans releasing untreated ballast water into Michigan waters from ocean-going ships. The law requires all ocean-going vessels to obtain a permit from the DEQ before using Michigan ports. The law only allows these ships to discharge ballast water if it is first treated with an approved system to eliminate any aquatic invaders. Ships can alternatively certify that they will not discharge ballast water while in Michigan's ports to obtain permit coverage.

Michigan is the first state to

“We must seize the opportunity for coordinated state regulation to prevent the economic and environmental damage that could be caused by the next species to arrive in ballast water.”

-Governor Jennifer Granholm

of the Michigan Office of the Great Lakes. “The reason for our confidence is we estimated 75 international ships in Michigan prior to this program, and there are now roughly the same number of ships covered under the permit.”

With the DEQ’s successful

enact such requirements on the Great Lakes, and in its first year, the program has proven to be a success. 77 ships representing 28 companies have obtained permits from the DEQ, a statistic that is especially representative of the program’s smooth start.

“We don’t think that it has had any effect on shipping,” said Roger Eberhardt

implementation of the permitting system, and frustrated by inaction at the federal level, Governor Jennifer Granholm is encouraging other states to follow Michigan’s lead and adopt this law throughout the Great Lakes region. In an August 29 letter to the governors of the Great Lakes states, as well as authorities in Ontario and Quebec, Governor Granholm urged collective action to, “seize the opportunity for coordinated state regulation to prevent the economic and environmental damage that could be caused by the next species to arrive in ballast water.”

Currently, similar bills have been proposed in Wisconsin, Minnesota, Pennsylvania, Indiana and Ohio, but no state has yet passed legislation. Through policy cohesion, not only will Michigan’s efforts be amplified, but blocking the further introduction of non-native species becomes a more realizable goal.

For the Great Lakes regional ecosystem to prevent the introduction of new non-native species, Michigan’s first step serves as an effective example.

For more information on what boaters can do to help prevent the spread of invasive species, see page 11.

invasive species linked to ballast water		
year	common name	type
2006	bloody red mysid	crustaceous
2005	VHS	virus
2002	testate amoeba	invertebrate
2001	amphipod	benthic crustacean
1998	fish-hook waterflea	zoo plankton
1990	round goby	fish
1988	zebra mussel	mollusk





# Saginaw Bay Coastal Initiative

*When given the broad goal of developing an initiative to enhance the Saginaw Bay region, the Department of Environmental Quality was not given a small task. Not only has the Saginaw Bay area been challenged by problems that have spoiled its beaches and coastlines, but the region's tourism and economic sectors have suffered as a result.*

photo courtesy of: Keto Gyekis: KGNature Photography.com

**S**aginaw Bay is an area rich with tradition in Michigan. For years, families from all across our state, and around the Midwest, would travel here to spend warm summer days on the beach and in the water at Bay City State Park and a number of other stops along the coast. In more recent years, however, environmental issues have impacted the region's natural beauty and attraction, visitors have become fewer, and those looking to enjoy time on our Great Lakes have gone elsewhere. Increasingly, those living along Saginaw Bay have asked how these trends can be reversed, and the answer may lie in a growing partnership between the state, local governments, and communities.

The Saginaw Bay Coastal Initiative, or SBCI, was organized by Lieutenant Governor John Cherry

and DEQ Director Steven Chester in an effort to encourage economic development and tourism in the Saginaw Bay area by improving the health of the surrounding environment. The first meeting of this new partnership between the state and local organizations took place on August 31, 2006, and identified a number of issues the participants agreed needed to be addressed as part of the overall goals of the initiative.

Time was certainly not wasted in forming workgroups to begin exploring these issues, and these efforts quickly yielded results. The DEQ began hosting a regular evening speaker series that brought experts on the environmental issues affecting Saginaw Bay into the community to discuss specific topics such as agricultural runoff, sewer overflows, and a number of other issues related to the overall efforts of restoring Saginaw Bay.

While these experts were shedding light on a number of environmental issues for the region, work began on a primary concern identified by the SBCI; the growing problem of excessive algae lining the shores of Saginaw Bay. The algae, better known locally as "muck," has certainly played a role in keeping people from the beaches. Some are worried about its health effects, while others simply want to avoid the foul odor it creates, but everyone agrees answers are needed on what's causing it and how it can be eliminated.

To find these answers, the SBCI reached out to Dr. Joan Rose, a microbiologist from Michigan State University. Dr. Rose and her team quickly began to conduct DNA testing on the muck to determine what it's made of and where it came from. While her research is still ongoing, early results have shown that, among other contributors, the muck

contains certain amounts of human sewage, reinforcing the importance of the work being done to eliminate sewer overflows in the area.

More work is needed to further identify the various other contributors to the muck problem before the DEQ can develop a plan to combat it. To assist in these efforts the DEQ has submitted a letter of support for a \$500,000 federal grant Dr. Rose is seeking to continue and expand upon her research.

Work is also progressing rapidly on improving the aesthetics of the Saginaw Bay shoreline and creating new development opportunities. The DEQ recently announced

a \$30,000 grant to expand and improve Bay County's Pinconning Park, while other projects are seeking new ideas and plans for recreational opportunities throughout Saginaw Bay.

Without question, the SBCI has proven to be a success throughout its first year, yet plenty of work remains to be done. During the initiative's second year, increased efforts to control phosphorus and *E. coli* in the Saginaw Bay coastal area will be undertaken by conducting sanitary surveys to identify sources of raw sewage and illicit connections, and explore the impact of agricultural runoff to nearby waters.

Additionally, the SBCI will place an emphasis on controlling pollutants in the Kawkawlin River, increasing access to Saginaw Bay, and continuing to work towards addressing the beach muck.

The DEQ is pleased to be a partner in this historic effort to restore one of Michigan's premier recreational destinations along the Great Lakes. The work of everyone involved in the SBCI collaboration will ensure that future generations of visitors to our state will be welcomed to a renewed and vibrant Saginaw Bay.

For more information on the SBCI, go to [www.michigan.gov/deq](http://www.michigan.gov/deq) and click on Saginaw Bay Coastal Initiative under 'Issues to Watch.'

## phragmites

For visitors from around the world, Michigan's coastline is the gateway to the Great Lakes. The 3,921 miles of Great Lakes shoreline that surround our state create opportunities for swimming, fishing, and boating that can only be found in Michigan. What is often overlooked, however, is that our shorelines are home to unique animal and plant life that also can only be found here.

We take great care to ensure that our shorelines are safe and these habitats protected, however, they have faced a new threat in recent years that is becoming a growing problem across our state.

Phragmites, an invasive variety of very tall wetland grass, has found its way to our state. It can generally be found growing in coastal and interior wetlands, lake margins, roadside ditches, and other low, wet areas, although it can also be found in dry areas.

Phragmites tend to grow in clusters and become so dense that they degrade wetlands and coastal areas by crowding out native plants and animals, block shoreline views,

reduce access for swimming, fishing, and hunting, and potentially create fire hazards from dry plant material. This problem has been increasingly common along the shores of Lake Huron and Saginaw Bay, and until now, efforts to control their growth have seen limited success.

The DEQ is now partnering with the Department of Natural Resources and other stakeholders to begin a phragmites control demonstration effort as part of an effort to eliminate or significantly reduce the invasive plant from these areas. Five demonstration sites have been chosen in the Saginaw Bay area where treatments such as mowing and various herbicides will be used to test the effectiveness of the chemical and mechanical treatment of phragmites.

Funding for this project has been provided by the U.S. Environmental Protection Agency's Great Lakes National Program Office, BASF, and the National Fish and Wildlife Foundation. Other contributors include

Ducks Unlimited, Cygnet Enterprises, Hampton Township, and Consumers Energy.

The DEQ would like to thank these organizations, along with the communities involved, for their support in this effort and others that seek to keep our Great Lakes coastline protected.

For more information on treatment options, please see the DEQ phragmites control website, [www.michigan.gov/deqaquaticinvasives](http://www.michigan.gov/deqaquaticinvasives)







# Stopping the spread of purple loosestrife

Most of us have seen it growing in road side ditches or along wetlands. Some of us may have even planted it on our property. Purple loosestrife is a highly aggressive brightly flowered plant that can degrade a wetland's habitat quality by crowding out native wetland plants. While this is just one of the many invasive plant species that are impacting our natural resources, this is one that you can help control.

As a recent example, representatives from the Cadillac District of the DEQ worked with Meijer to address purple loosestrife that had invaded a wetland area near their store in Traverse City. Meijer voluntarily agreed to create a program to control the spread of the plant by

non-chemical means. Through this process, they determined that using a plant feeding beetle called *Galerucella* would be the most effective method to control the plant's growth.

In an effort to involve the community and to spread awareness

of the damaging impact of Purple Loosestrife, Meijer worked with the Boy Scouts of America Scenic Trails Council, Northwestern Michigan College, the Great Lakes Water Studies Institute and King & MacGregor Environmental to conduct the beetle release on May 24, 2007, and provide ongoing training and monitoring to study the effectiveness of the beetle project.

If you are interested in additional information about Purple Loosestrife, where it has been identified as a problem, and the steps you can take to participate in a program to control its spread, the Michigan Sea Grant Program has a series of web "purple pages" to get you started.



By conducting a beetle project, the Boy Scouts of America aided in minimizing the effects of loosestrife.

The information can be found at [www.miseagrant.umich.edu/pp/index.html](http://www.miseagrant.umich.edu/pp/index.html)



Michigan has a proud tradition of protecting and caring for our environment. We are the caretakers of the Great Lakes. We pass traditions of fishing, camping, and connecting with nature down from generation to generation. We are the stewards of one of the most unique and vibrant ecosystems found anywhere on the planet. Most importantly, when our environment has been threatened, we have continued to rise to the challenge to ensure it stays healthy.

During the middle of the 20<sup>th</sup> century, industrial growth was creating an economic windfall for many areas of the country, including Michigan. Unfortunately, as we

recognition that Michigan must find a balance between continuing our economic growth, and preserving our environmental heritage. As part of the Constitutional Convention of 1963, the authors of the state's Constitution inserted language to require government to protect the air, water and other natural resources from "pollution, impairment or destruction." Discussions on how to implement this mandate continued throughout the decade, and by 1970 the framework for

worked to fulfill its promise to those who fought for MEPA's passage by working with businesses across the state to encourage environmental stewardship and ensure that environmental protection and economic success go hand-in-hand. Additional work between the DEQ



# Michigan's Environmental Heritage



continued to herald the successes of our economy, we too often pushed the protection of our environment to the wayside. Pollution levels grew and were looked at as an unfortunate, but necessary, side-effect of a successful market.

In the 1960s, there was a growing

this plan was turned into what became known as the Michigan Environmental Protection Act, or MEPA. MEPA was signed into law by Governor William G. Milliken in July, 1970, and quickly became a model for environmental laws in other states, and even other nations. Administration of the environmental protections provided by MEPA was housed within the Michigan Department of Natural Resources until 1995, when Executive Directive 1995-18 transferred the state's environmental regulatory programs over to the newly created DEQ.

Since that time, the DEQ has

and local communities has led to river cleanups, urban redevelopment, and a renewed vision that everyone in Michigan can play a role in keeping our environment safe.

While the DEQ will continue its work to preserve Michigan's environmental heritage, work must now also begin on the next generation of ideas and technologies that will protect and preserve our resources. Developing and promoting renewable and alternative energy sources in Michigan, creating energy efficiency policies, and making Michigan the center of development for "green" technologies will allow us to carry the principles and ideals of MEPA through this century and beyond and ensure that we are creating a Michigan that we can be proud to pass down to the next generation of environmental stewards.

To learn more about Michigan's environmental laws and rules, visit [www.michigan.gov/deq](http://www.michigan.gov/deq) and click on "DEQ Laws and Rules."

# staff spotlight

With over fifty published works under his belt, including a technical book entitled “Geotechnical Aspects of Landfill Design and Construction” that is used worldwide, Dr. Xuede (Dan) Qian is an invaluable resource for the Department of Environmental Quality’s Waste and Hazardous Materials Division.

What Dan does may not be glamorous, but where it lacks in glamour, it makes up for with the reward that he knows he’s making a difference to help the Earth in his own way.

Dan is a statewide Geotechnical Engineering Specialist for the DEQ. In his unique role at the DEQ, Dan reviews design plans developed by consulting firms for the design and construction of projects like landfills, hazardous waste facilities, brownfield redevelopment projects, as well as other projects around the state.

Dan’s work is critically important to Michigan to avoid situations where, for example, a landfill is developed incorrectly and could have extremely adverse impacts on the environment around it. Problems at landfills can range from faulty foundations, improperly designed liners, and other infrastructure faults that could result in a leaking landfill or side slope collapse.

Since the current tendency of landfill development is to expand

existing facilities, the DEQ’s role is to ensure that the stability of the landfills is maintained, and the surrounding environment is protected. Dan’s work ensures that Michigan’s landfills are safe and serve as a model for the rest of the country.

“That is why I choose to work for the state, because the solutions we find for problems here can be applied to other areas facing similar problems,” said Dan. “Working on environmental issues not only benefits Michigan, but the entire Earth.”

Dan’s work isn’t limited to the Lansing office of the DEQ; his work stretches throughout the state and even internationally. He has helped give important advice to assist officials from the Yunnan Environmental Protection Bureau to solve water pollution and groundwater problems in the Yunnan Province in China.

Dan also travels to China regularly to visit his family and often receives invitations to present seminars about “The Responsibilities of Regulatory Agencies in Waste Management” and “Optimum Development for Waste Disposal Resources” to various agencies and organizations in China.

Dan was born and raised in China and attended Hohai University in Nanjing, China, for both his bachelor’s and master’s degrees in civil engineering. In 1980, the United



In his role as a DEQ specialist in geotechnical engineering, Dan reviews the environmental impact of projects statewide.

States sent its first geotechnical delegation to China where Dan met Professor Frank Richart from the University of Michigan. Professor Richart, who is a widely renowned professor on soil dynamics, invited Dan to attend U of M. Dan took him up on the offer and received his Ph.D. in civil and environmental engineering with the specialty in geotechnical engineering in 1990.

Dan has held a range of important positions throughout the years, from lecturing at China’s Hohai University to working with Geolabs, Inc., in Hawaii as a Geotechnical Project Engineer and Laboratory Manager, to working as an adjunct assistant professor at the U of M. Dan really enjoys working at the DEQ. “I’m really proud of my position because it’s become important for humans because we live in a small world.”



Dan’s book, “Geotechnical Aspects of Landfill Design and Construction,” is one of the standard texts used in its area of focus.





Have a question?  
We have an answer!

**Q:** What can I do to help stop the spread of invasive species in our lakes and streams?

**A:** Michigan boasts some of the most pristine lakes and streams found anywhere in the world, and with over 183 invasive species along with the diseases they carry now threatening our waters, we must all play a role in keeping our natural ecology safe.

Those enjoying Michigan's lakes and streams should inspect watercrafts and recreational equipment before leaving a lake or other water body, remove any vegetation, drain all live wells, clean areas that may contain water, and dispose of unused bait in the trash. Allowing boating and recreational equipment to dry 4-6 hours in the sun also helps to prevent the spread of the VHS virus as well as zebra mussels and other organisms from one lake to another.



**Q:** Am I allowed to burn leaves in my yard?

**A:** Historically, many residents have burned their leaves each fall, however this activity now has been largely prohibited in many areas of the state. Burning leaves produces smoke and ash that releases fine particles, carbon monoxide, and hydrocarbons into the air. Those pollutants are unhealthy for adults and can be dangerous for children, seniors, and anyone else with a medical condition such as allergies, asthma, or heart disease. In rural areas where burning yard waste is allowed, permits are required to burn leaves or brush, however the DEQ encourages residents to explore more environmentally friendly options.

Mulching is often an easy and safe alternative. A common method is

to simply mow over leaves with a lawnmower, which chops them into a fine mulch and provides a number of needed nutrients that will keep your lawn looking healthy.

Many communities also offer municipal composting programs that provide safe and convenient curbside pickup of yard waste. Your local city, township, or county Department of Public Works office can explain how they dispose of leaves and other yard waste.

For more information, go to [www.michigan.gov/deqair](http://www.michigan.gov/deqair) and select 'Open Burning Information' under Spotlight. The DEQ Environmental Assistance Center at 1-800-662-9278 can provide information as well.



## call for environmental assistance



The DEQ's Environmental Assistance Center is your single point of entry into all of the DEQ's environmental programs.

By calling the EAC at **1-800-662-9278** from 8:00 a.m. to

5:00 p.m. Monday through Friday, you can be quickly put in touch with the DEQ staff who can best answer your question or provide you with the information you are looking for. You can also email the EAC at [deq-ead-env-assist@michigan.gov](mailto:deq-ead-env-assist@michigan.gov).

To report an environmental emergency in your community, you should instead call the DEQ's 24-hour Pollution Emergency Alerting System at: **1-800-292-4706** (within Michigan) or **1-517-373-7660** (outside of Michigan).



## next... in Perspective:

The next issue of *Perspective* will focus on efforts being made around the state to revitalize our communities by cleaning and redeveloping polluted sites known as

Brownfields. These projects range from the Detroit Riverwalk Project to cleanups in your hometown, and they all play a role in creating a healthy and successful Michigan.



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